**REPLY DECLARATION OF CHRISTOPHER J. MCDONALD
IN FURTHER SUPPORT OF END-PAYOR PLAINTIFFS'
MOTION FOR CLASS CERTIFICATION [PUBLIC VERSION]**

Exhibit 65

Part 1 of 3

CHAPTER 15

Prescription Drug Benefits in Managed Care

Robert P. Navarro

Study Objectives

After reading and understanding the Pharmacy Services chapter, the reader should be able to understand the following:

- Why health plans began to manage pharmacy program costs in the early 1980s
- The five factors that contribute to pharmacy program costs
- The trends in pharmacy program costs and utilization rates
- The metrics commonly used to measure and compare pharmacy program performance
- The basic components of a pharmacy benefit management information system
- The value of integrating pharmacy and medical claims data in managing pharmacy benefit programs
- The role of the Internet in pharmacy program management
- The advantages and disadvantages of using a PBM for pharmacy program management
- How the Certificate of Coverage effects pharmacy benefit design
- The basic components of a pharmacy benefit management program
- The factors involved in the legal basis of pharmacy benefit management
- The components in a managed care pharmacy distribution network
- The essential elements of a pharmacy provider contract, including the administrative requirements surrounding the dispensing process
- The role of the drug formulary in pharmacy benefit management
- How pharmacoeconomic data are used in the drug formulary decision process
- The potential impact of drug formularies on drug access and utilization
- The influence of prescription drug patient copayments on program costs, drug access, and utilization
- The value of drug utilization review in pharmacy benefit management
- The impact of NCQA HEDIS measures and disease management on pharmacy program management

294   ESSENTIALS OF MANAGED HEALTH CARE
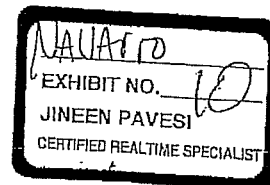
Prescription drugs are a highly coveted and widely used health care benefit and an important cost-effective component of a comprehensive health care benefit program. More than 92 percent of health maintenance organization (HMO) membership has access to a prepaid pharmacy benefit, although historically prescription drugs have been a mandated HMO benefit only in Minnesota.[1] By 1995, third-party payers reimbursed more than 50 percent of all prescriptions dispensed in retail pharmacies in the United States. In the year 2000, IMS Health (web address: http://www.imshealth.com) estimates that third-party reimbursement levels will approach 80 percent of all retail prescriptions in the United States.[2] Clearly, managed pharmacy benefit programs have increased the use of medications by making prescription drugs more affordable and accessible to the members of managed care organizations. However, despite the clinical and economic value of appropriately used pharmaceuticals, managed care and its customers have expressed alarm at the steady double-digit annual increase in pharmacy program costs that is exceeding the cost trend of physician and hospital costs. As a result, managed care and its em-

Robert P. Navarro, PharmD, is President of NAVARROPharma, LLC, a consulting group serving the health care industry on outcomes-oriented, cost-effective pharmacy benefit management programs, and the pharmaceutical industry on training, customer interventions, and strategies to successfully market pharmaceutical products to managed care customers. He has practiced in long-term care, acute care, community pharmacy, as well as 17 years in managed care building and operating prescription drug programs with United HealthCare, Diversified Pharmaceutical Services, Health Net (California), and Express Scripts, Inc.

Navarro was a co-founder and first president of the Academy of Managed Care Pharmacy, now a 4,500 member professional association representing managed care pharmacists. He is a member of the American Society of Health-System Pharmacists and the International Pharmacy Federation. He is chief editor of Managed Care Pharmacy Practice, a textbook published in 1999 by Aspen Publishers. He writes and speaks frequently on managed care

ployer group customers are attempting to minimize the cost and maximize the clinical and economic outcomes of the pharmacy benefit through an evidenced-based approach. The result is an evolution in the benefit design of the pharmacy program that will have a significant impact on future access and use of pharmaceuticals, although the ultimate impact on clinical outcomes and quality of life is yet unknown.

FINANCIAL BASIS FOR PHARMACY BENEFIT MANAGEMENT

In the early formative years of managed care, health policy administrators and providers of care recognized that affordable prescription drug benefits were an important health care delivery component that was consistent with the prepaid "health maintenance" concept of HMOs and managed care. In 1970, just before the passage of the HMO Act of 1973, pharmacy costs were just more than 8 percent of total U.S. health care expenses, whereas hospital costs made up 38 percent of total costs, and physician expenses represented 19 percent of expenditures.[3] By the early 1980s, pharmacy costs were typically only 5 percent of an HMO's total health care costs. However, cost containment of all products and services has always been a core responsibility of managed care organizations (MCOs). As a result, after most large HMOs had implemented strategies to contain hospital and physician costs, they began to address pharmacy costs. Figure 15–1 illustrates the percent consumption of hospital, physician, and pharmacy programs of total health care costs from the 1970s through the 1990s. By the mid-1980s, pharmacy costs were showing a steady increase (see Figure 15–2). Although the total pharmacy program costs were relatively small compared with hospital and physician costs, the trend rate became alarming. As a result, managed care began to aggressively manage pharmacy program benefits.

Pharmacy program cost increases came under relative control from 1990 to 1993 (see Figure 15–3) but have increased steadily since that time. In a 1999 survey of 20 pharmacy benefit

ing to mini
cal and eco
cy benefi
ch. The r
esign of the
. significant
harmaceut
on clinical
iknown.

МАСY

naged care
roviders of
rescription
lth care de
nt with the
it of HMO
ire the pas
macy cost
total U.S
pital cost
l physician
f expendi
costs were
MO's total
ainment of
been a core
anizations
rge HMO
in hospital
dress phar
he percent
and phar
costs from
nid-1980s
ly increase
pharmacy
compared
: trend rate
ed care be
y program

ame under
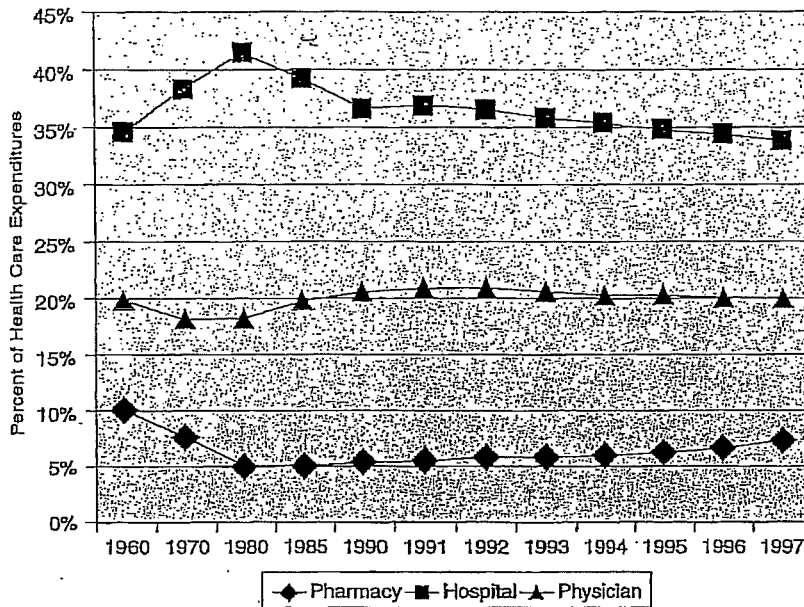see Figure
since that
cy benefit

Figure 15–1 Percent Health Care Expenditures of Hospital, Physician, and Pharmacy Services. *Source:* Reprinted from National Health Statistics, 1999, Office of the Actuary, Health Care Financing Administration.
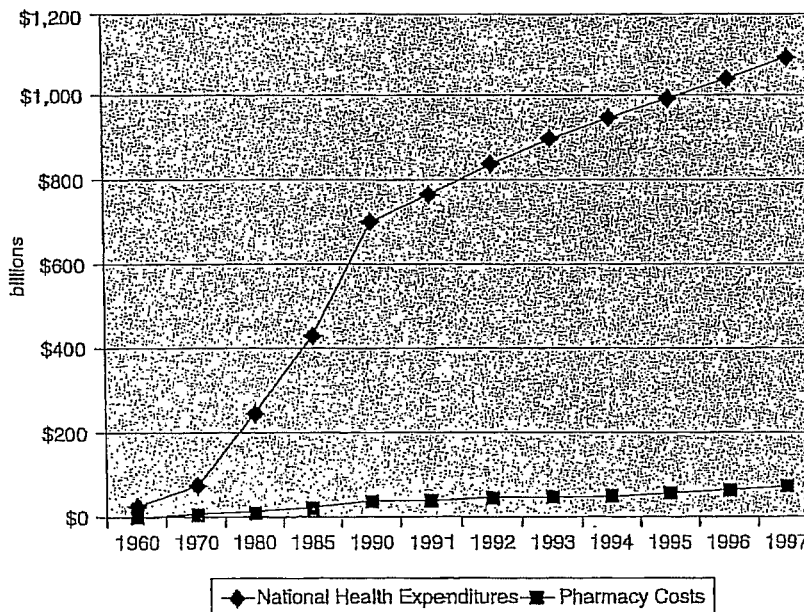

Figure 15–2 Comparison of U.S. National Health Care Expenditures and Pharmacy Costs Trend. *Source:* Reprinted from National Health Statistics, 1999, Office of the Actuary, Health Care Financing Administration.
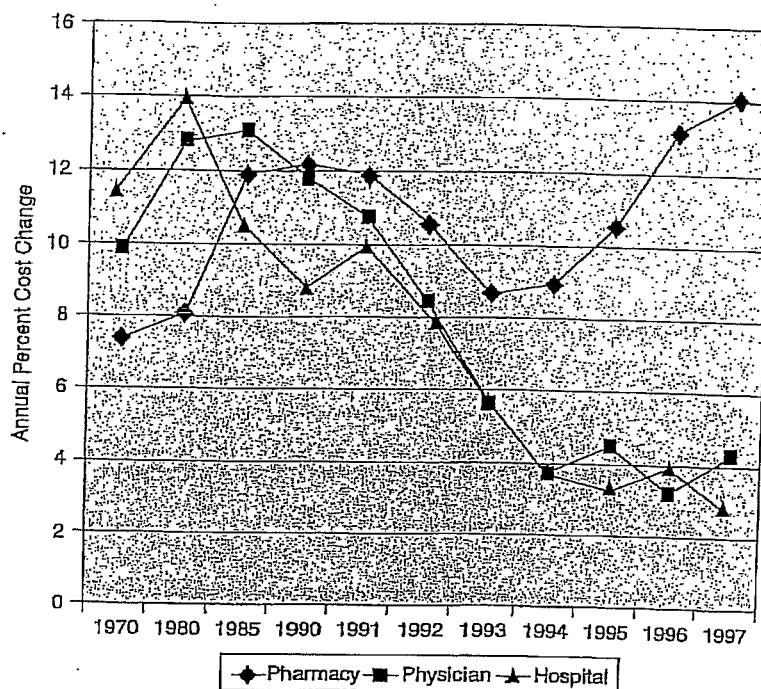
296 . ESSENTIALS OF MANAGED HEALTH CARE

Figure 15–3 Comparison of Pharmacy, Physician, and Hospital Annual Cost Changes. *Source:* Reprinted from National Health Statistics, 1999, Office of the Actuary, Health Care Financing Administration.

managers (PBMs) and HMOs representing more than 161 million lives, pharmacy program costs were increasing at an average annual trend rate of 18 percent (range, 14 to 28 percent).[4] This is in sharp contrast to the cost trend of hospital and physician costs, which have been in the 3 to 5 percent range since 1995. Express Scripts, Inc., a large independent PBM reported that the pharmacy program drug average wholesale price (AWP) on a per-member-per-year (PMPY) basis increased 16.8 percent from 1997 to 1998. The same study found that pharmacy program cost increased 66.6 percent from 1994 to 1998, with half of this growth caused by drugs launched after 1994.[5] The annual pharmacy program increases caused great alarm among payers. and pharmacy program managers, especially because the annual cost increases of hospital and physician costs were approximately 3 to .5 percent at the same time (see Figure 15–3).[6]

Unquestionably, an aggressive pharmacy program management can reduce program costs. Figure 15–4 illustrates the difference in long-term program per member per month (PMPM) costs between an HMO that implemented an aggressive pharmacy program management in 1988 and an HMO that did not. There is an approximate $10 PMPM difference between the two plans after 15 years of operation. Note that the cost trend of both programs is positive, but the managed program started at a lower point after implementation of the managed program in 1988 and has a slightly lower slope of the curve.

The growth in the average prescription price provides another metric to measure pharmacy cost increases. The National Association of Chain Drug Stores (NACDS) found that the average retail prescription price increased 7.5 percent from $35.72 in 1997 to $38.43 in 1998.[7] When dissecting the brand versus generic pre-
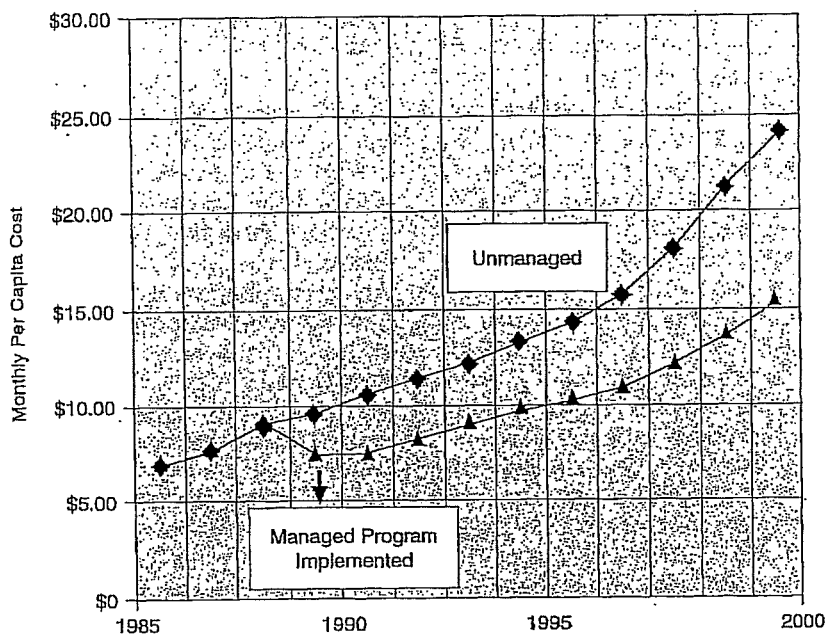
Figure 15-4 Comparison of Managed and Unmanaged Pharmacy Program Costs (Example).

scription prices, the NACDS found that brand prescription prices increased from $49.55 to $53.51, an 8 percent increase, whereas generic drug prices increased 2 percent, from $16.95 to $17.33 from 1997 to 1998. Clearly, this demonstrates why managed care has mandated the use of generic drugs, when clinically appropriate, as a seminal cost-containment strategy. As will be discussed later, this is also the reason for the tiered copayment structure that provides a financial incentive for the member to accept, or even request, a generic alternative.

PHARMACY PROGRAM COST COMPONENTS

Although the total pharmacy program costs and the annual cost trend are important financial performance measures to follow, these metrics alone do not provide adequate information to develop a comprehensive pharmacy benefit management program. Effective pharmacy benefit managers will dissect their overall cost trend and identify the specific cost drivers so that they may craft a program that addresses the components that contribute to program cost increases. Express Scripts conducted such an evaluation and found that when costs increased 16.8 percent from 1997 to 1998, the primary cost drivers were drug price inflation (5.1 percent), a change in the drug mix (4.4 percent [physicians "trading up" from older, less expensive products to newer, more expensive drugs]), and an overall increase in prescription use (3.8 percent). Other less important drivers were the number of units per prescription and an increase in drug strength (e.g., higher milligrams being dispensed).[8]

Drug price inflation and utilization rate are typically the two components that are most responsible for pharmacy program cost increases, and most management strategies address these cost drivers. Express Scripts found that the drug price inflation more than doubled between the periods of 1996 to 1997 (2.4 percent increase)

298   ESSENTIALS OF MANAGED HEALTH CARE

and 1997 to 1998 (5.1 percent increase).[9] At the same time, the utilization rate (number of prescriptions obtained PMPY) increased 4.5 percent in the 1996 to 1997 period and actually declined 3.8 percent in the 1997 to 1998 period. However, this 3.8 percent trend represented an increase from 7.4 prescriptions PMPY in 1997 to 7.68 prescriptions PMPY in 1998.

Pharmacy program costs, the utilization rate, and average prescription price are tangible, highly visible, and easily measurable metrics. As a result, payers and health plans naturally focus on costs. However, intellectually we understand that appropriately used pharmaceuticals are perhaps one of the most cost-efficient forms of therapy, and we hesitate to control pharmacy benefits excessively. As will be discussed later, it is difficult to judge the clinical or economic impact of drugs due to the challenge of measuring outcomes. From the cost-containment perspective, the pharmacy program manager may be concerned that the increase in prescription use will increase program costs. However, from the perspective of outcomes management, the increase in prescription use may result in better disease prevention or treatment that may ultimately improve the quality of care and total direct medical costs as a result of avoided hospitalizations. The general lack of data to definitively link drug use with medical or economic outcomes is the fundamental reason why pharmacy programs are aggressively managed to contain utilization and costs.

New drugs, often more expensive than older brand and generic drugs, may be restricted or not covered by some MCOs when launched for two primary reasons. First, health plans are reluctant to cover a new drug for several months until the adverse effect profile is well established. Second, new drugs that are more costly may not offer any significant clinical advantages over existing, less expensive products. Health plans will investigate the literature and consult with their specialists to determine whether the new, expensive drug provides greater value than existing formulary products. Express Scripts found that the 50 top drugs by cost that were launched subsequent to 1992 represented 35.6 percent of the total 1998 AWP PMPY costs.[10]

PRINCIPLES OF PHARMACY BENEFIT MANAGEMENT

Health care is a market-driven business, and there is enormous competition among MCOs for employer groups and members. As a result, HMOs, PBMs, and other MCOs providing a pharmacy benefit must do so in a cost-efficient manner. That is, they must provide affordable access to required medications at a cost that is acceptable to pharmacy benefit purchasers. Achieving this balance of cost and quality presents an ongoing challenge for pharmacy program managers as program costs continue to increase (as shown previously) and yet members are less willing to accept higher copayments, restrictions, or limitations in their pharmacy benefit. Member satisfaction is becoming increasingly important as the quality of care delivered by managed care becomes a topic for public and political debate. The cover story of the November 8, 1999, issue of Newsweek was titled "HMO Hell."[11] According to the article, 61 percent of the HMO members surveyed were angry about the health care system. The chief specific complaint was high cost of prescription drugs (81 percent of those surveyed had this complaint), and 84 percent of the surveyed members stated that access to affordable drugs is the "most important" component of their health care. This survey verifies the importance affordable prescription drugs are to members of managed care plans.

Recognition of the value of pharmaceuticals (the product of cost and benefit) must not be ignored when making a drug formulary coverage decision. Ideally, we should construct and evaluate the pharmacy program while considering the impact of appropriately used, cost-effective pharmaceuticals on the clinical, economic, and humanistic (quality of life) outcomes.

For example, the least expensive drug may produce a high rate of serious, costly adverse effects that may result in hospitalization (with obvious negative clinical and economic outcomes). However, a newer, more expensive drug may have been much safer, and although the pharmacy budget may increase, the total overall impact on economic and quality of life outcomes

ENEFIT

siness, and
MCOs for
s a result,
roviding a
st-efficient
affordable
cost that is
purchasers.
quality pre-
rmacy pro-
tinue to in-
t members
yments, re-
rmacy ben-
ng increas-
e delivered
r public and
he Novem-
itled "HMO
ercent of the
y about the
c complaint
l percent of
and 84 per-
that access
rtant" com-
vey verifies
n drugs are

maceuticals
st not be ig-
ry coverage
t and evalu-
sidering the
st-effective
nomic, and
s.

drug may
adverse ef-
n (with ob-
outcomes).
drug may
h the phar-
overall im-
e outcomes

would be more positive than with the less expensive drug. Therefore, we must not manage the pharmacy benefits as an isolated component but as an interactive component that has an influence on the outcomes of other components. Unfortunately, until we have complete, integrated clinical or claims data that will allow the overall evaluation of drug use, we will likely continue to manage health care from a compartmentalized, silo perspective. Pharmacoeconomics and disease management programs, discussed later, have provided some enlightenment in this regard and are focusing more attention on the value of pharmaceuticals rather than simply on their cost.

MANAGING THE SUPPLY AND DEMAND

Managed care attempts to control behavior of all individuals, and entities can influence the supply and demand of health care products and services by sharing the financial risk. From a pharmacy benefit perspective, managed care implements supply side contracts with pharmaceutical manufacturers and dispensing pharmacies that essentially provide a discount on the drug ingredient cost and the dispensing fee. Demand-side controls involve prescription copayment or coinsurance the member must pay to access pharmacy services. Many managed care organizations, especially on the West Coast and in the Northeast, also share the financial risk of the pharmacy benefit with prescribing physicians. The theory behind this strategy is that physicians will prescribe more cost-efficiently if they share in the cost of the drugs they prescribe. Despite the fact that this practice has been criticized for allegedly providing perverse incentives to physicians, pharmacy cost risk sharing with physicians continues and is spreading to other parts of the country. In summary, pharmacy program managers attempt to control the drug ingredient cost and prescription use, obtain discount contracts with all entities that can influence drug cost or the dispensing process, and share the financial cost of the pharmacy program with all individuals that can influence the supply and demand of prescription benefits.

PHARMACY INFORMATION SYSTEMS AND HEALTH INFORMATICS

Similar to any modern business, pharmacy practice and the administration of a pharmacy benefit are critically dependent on data and information systems. The basic information systems involved in pharmacy benefit management include the following:

- Internal MCO systems used for storing member demographic, benefit, and claims adjudication data. Actual claims adjudication may occur within the HMO, a third-party claims processor, or a PBM (if used). See Chapter 21 for additional discussion about claims processing.
- In-pharmacy point-of-service (POS) system dispensing pharmacist uses to determine member and drug coverage information and reimbursement information and adjudicate the claim online and in real time.
- Pharmacy claims analysis system (for drug utilization review, pharmacy program performance analysis, research, patient and physician intervention programs, etc.). This capability often resides within the third-party administrator or the PBM (if used). Larger, sophisticated HMOs may have their own internal analysis system even though they use a PBM. See Chapter 18 for additional discussion about practice profiling.

The presence of an accepted electronic data interchange standard for pharmacy claims transmission and adjudication accelerated the adoption of pharmacy e-commerce. This standard, maintained by the National Council for Prescription Drug Programs (NCPDP), permits the submission of pharmacy claims and the adjudication of those claims in a real-time interactive mode. This universal standard has allowed the pharmacy profession an advanced position in electronic commerce that other segments of the health care industry have not yet achieved. The NCPDP is a nonprofit organization of almost 1,200 members representing almost 600 companies that "establishes, monitors, and maintains standards of information processing for the

pharmacy-services sector of the healthcare industry."[12] The NCPDP is recognized by the American National Standards Institute (ANSI) as an American Standards Developer in pharmacy electronic data interchange.

Pharmacy Claims Adjudication Systems[13]

Observation of the NCPDP data standards allows 95 percent of all prescription claims to be processed electronically online and usually in real time. Pharmacists rely on the benefit design and coverage information provided to them through the in-pharmacy POS system. More than 75 percent of patients obtaining pharmacy benefits in many pharmacies are members of MCOs, and because of the highly variable, frequently changing, complex benefit design and coverage rules, pharmacists simply must rely on electronic messaging to process the prescription. When a pharmacist fills a managed care prescription, the required patient, drug, and prescriber data are input into the POS system. Within seconds, the pharmacist is informed if the patient and drug are eligible for coverage, is given the copayment to be collected, is told the level of prescription reimbursement from the MCO or PBM, and is provided any pertinent clinical information (e.g., drug interactions). The pharmacist then "approves" the prescription reimbursement data and within seconds the claim is adjudicated online.

The latest generation of pharmacy management systems provide patient-specific information to the prescriber or dispenser at the point-of-care that will help reduce side effects, drug interactions, dispensing errors, and the improper use of medication. Frequently, systems encourage drug compliance through messaging or other forms of communication directed at the dispensing pharmacist. Although improved compliance may increase drug costs, the goal is to reduce long-term overall medical costs. All these improvements, based on an increase in software complexity, have occurred as a result of better and faster hardware.[14]

Evolving pharmacy management systems are able to select appropriate pharmaceuticals on the basis of submitted diagnosis codes, patient drug histories, or other specific clinical guidelines. Specific evaluations of encounters, not available in the first-generation systems, can enable the pharmacist to influence patient drug use or provide patient-specific counseling strategies.[15] The newest generation of systems often focuses on clinical guidelines on the basis of specific conditions or disease states. Pharmaceutical and medical professionals can design patient management programs that target small, high-risk populations that are driving health care costs. Clearly, the ability to analyze information provided by the online systems is a key to the evolution of prescription benefit management systems.

Other Pharmacy Information Systems[16]

MCO management information systems that store billions of prescription records, member medical history and utilization patterns, provider activities, claims administration, and financial records are generally referred to as online transaction processing systems (OLTPs). These systems and advances in technology have provided the means to collect and store data. Beyond claims adjudication and data storage, there is another challenge to use the data to advance prospective drug utilization review, disease management, incentive-based cost management (rebate programs) to improve cost, and quality outcomes. This requires the development of systems that can transform huge amounts of data and convert them into understandable information for clinical and business decision makers.

This different application requires a different type of information system. Online analytical processing systems (OLAPs) transform the data collected from different sources and delivery systems by the OLTP systems into clinical and business decision support tools. OLAP systems are often called data warehouses, in which data from transaction based systems are collected, integrated, and delivered to end users expressly to support data or clinical analysis activities. The basic requirements of an OLAP system are to assemble and transform raw data into a form that is suitable for analysis, distribute the data, and

les, patient drug
ical guidelines.
rs, not available
, can enable the
drug use or pro-
strategies.[15] The
ften focuses on
f specific condi-
utical and medi-
ent management
-risk populations
Clearly, the abil-
led by the online
n of prescription

Systems[16]

on systems that
ecords, member
atterns, provider
n, and financial
as online trans-
Ps). These sys-
y have provided
e data. Beyond
rage, there is an-
to advance pro-
v, disease man-
st management
ost, and quality
lopment of sys-
mounts of data
ndable informa-
cision makers.
uires a different
nline analytical
nsform the data
es and delivery
into clinical and
OLAP systems
s, in which data
re collected, in-
ers expressly to
s activities. The
P system are to
into a form that
te the data, and

provide access to the information store in a "datamart" concept accessible to the appropriate user (see also Chapter 20 for additional discussion about data warehousing and reporting). Protection of patient confidentiality is paramount in successful administration of the data warehouse concept, ever more so with the passage of the Health Insurance Portability and Accountability Act of 1996 (HIPAA; see Chapter 34). Access to integrated pharmacy, medical, demographic, provider, and financial records supports that ability to manage pharmacy benefits from an integrated perspective and allows the consideration of pharmacy as a source of value rather than only a cost center.

Pharmacy and Medical Claims Integration

Medical and pharmacy data are collected for various financial, administrative, and clinical reasons. However, most delivery system data and information were developed at different times, by different developers, and for independent reasons. As a result, most health plans do not have the ability to easily collect, integrate, and analyze comprehensive patient care records that span all delivery components.

Merging of these medical and pharmacy databases is accomplished through linking the common shared dimensions, such as identifiers for member, physician, and employer group. Because pharmacy coding is very specific and standardized (i.e., a drug's National Drug Code [NDC] number can relate to only one drug entity), drug utilization serves as a surrogate quality of care indicator for many diseases. For example, in asthma treatment, the relative amount of inhaled corticosteroids and beta-agonists used can be an indicator of how successfully the disease is being managed. National Commission for Quality Assurance (NCQA) has established many such "effectiveness of care" indicators through its HEDIS program (Health Plan Employer Data and Information Set), thus forcing MCOs to create merged or linked databases.[17]

Integrated claims databases can be analyzed to observe patterns of medical or drug interventions that produce superior or inferior outcomes. For

example, a population of case-mix-adjusted patients with a specific medical condition can be stratified according to severity, age, comorbidity, and so forth, and different antibiotic interventions to compare the clinical and economic outcomes of each cohort. Similarly, physician performance may also be evaluated and compared. A well-constructed, merged database may be used to identify clinical "best practices" that are associated with most cost-effective outcomes.

Electronic Data Interchange and Electronic Commerce

The NCPDP has developed at electronic data interchange (EDI) format called SCRIPT to standardize electronic commerce of prescription data from the physician to the pharmacist. Successful installation of this application will help increase formulary conformance, adherence to drug therapy guidelines, and increase pharmaceutical manufacturer contract performance.[18] Other segments of health care are working under the ANSI Health Informatics Standards Board (HISB) to ensure that the developing standards allow the systems of the various health delivery components will be interactive and share standardized processes, data definitions, and data interchange procedures. Clearly, the incredible pace at which Internet e-commerce is progressing will provide interactive applications for pharmacy benefit administration by exchange of data and pharmacy-related information among the trading partners.

Electronic Prescribing[19]

Electronic prescribing is an EDI application that provides physician connectivity with the pharmacy to allow a physician to transmit a prescription order to a pharmacy online. There are several potential financial and patient care advantages to the physician, health plan, pharmacy, and patient. Electronic prescribing (EP) provides the physician the ability to consult an online, point-of-care drug formulary, and/or treatment guideline reference to minimize variation in drug prescribing, as well as providing physicians a complete patient medication

302   ESSENTIALS OF MANAGED HEALTH CARE

history. This point-of-prescribing information supports physician behavior modification by providing instantaneous feedback. Prior authorization or step-care protocols may be recommended or enforced through EP. The EP system can also alert the physician at the point-of-prescribing of any drug interactions, history of adverse events, redundant prescriptions, and incorrect dosages before the patient leaves the physician's office so that they may be corrected before the prescription is transmitted to the pharmacy.[20] Figure 15–5 illustrates one example of the EP process.

Through EP, prescriptions can be transmitted electronically to the pharmacy of choice in a legible format. Alerts and reminders are integrated into such programs to encourage compliance and follow-up and enhance appropriate drug utilization. When the physician makes the diagnosis, the system will provide recommended drug products on the basis of the diagnosis, current patient data, past medical history, known allergies, past drug experiences, health plan treatment guidelines, drug use protocols, and comparative drug outcomes research. The system can construct a patient-specific prescription on the basis of these data elements in a real-time basis.

The physician can then transmit the prescription information to the selected pharmacy, alone or with other pertinent patient information, such as diagnosis or drug indication or laboratory or physical findings, that would assist the pharmacist in providing patient counseling or drug monitoring. EP reduces physician office time and costs by transmitting a "clean" prescription to the pharmacy. This eliminates any phone calls from the pharmacy if a nonformulary drug is mistakenly prescribed or if the dosage is unclear or incorrect. EP also reduces the time for the prescription to be filled and may reduce patient time waiting in the pharmacy because the prescription is electronically transmitted to the pharmacy before the patient arrives at the pharmacy. EP can support and enforce prior authorization programs, disease management, drug use guidelines, or step-care protocols that check a patient's drug history to determine whether the required initial drug of choice has been used before a more expensive, second-line drug is prescribed. The EP system can provide immediate prescribing feedback to the physician so that education occurs and behavior is modified and the new learning is reinforced. The physician can send to the pharmacy a message indicating that patient educational material should be customized, printed, and provided to the patient when the prescription is dispensed.

The MCO benefits from EP through increased formulary conformance. One health plan experienced a 12 percent increase in formulary conformance and a 14 percent increase in generic drug use through an EP application.[21] There are a
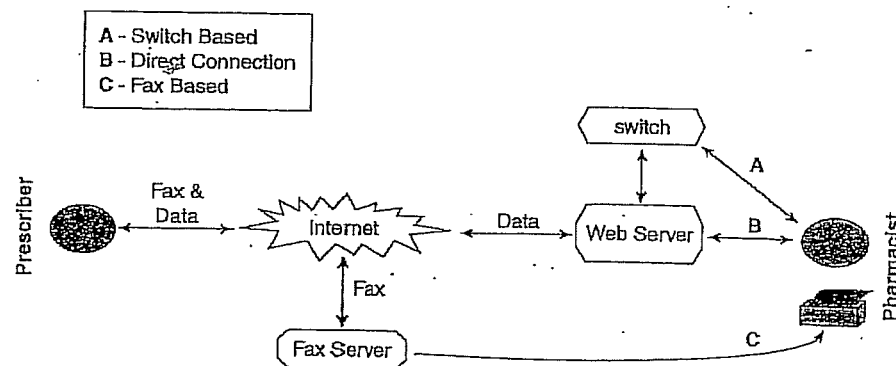

Figure 15–5 Schematic of Electronic Prescribing Transmission. Courtesy of Med Data Healthcare Systems, Inc.

number of pilot projects that use web technology to support EP. Although some state Boards of Pharmacy may have expressed concerns over security and confidentiality of electronically transmitted prescriptions, it appears as if there are enough economic and patient care benefits that EP will become a standard practice in the near future.[22]

Pharmacy Services and Health Telematics[23]

The rapid expansion of information technology presents novel opportunities and challenges for patient communication and intervention related to their pharmacy benefits. The National Association of Boards of Pharmacy defines health telematics as "a composite term for health-related activities, services and systems, carried out over a distance by means of information and communications technologies, for the purposes of global health promotion, disease control and health care, as well as education, management, and research for health."[24] Health telematics, telemedicine, and telepharmacy are all concepts that use information technology and enlightened health care practitioners to advance health care promotion and outcomes. The World Health Organization also endorses these strategies to advance global health development through its Health-for-All Strategy in the twenty-first century.[25]

EDI, physician connectivity and EP, the Internet, and web technology all present a practice platform that is quite different. The success of telemedicine and telepharmacy is based on two fundamental concepts: moving information rather than people, and bringing care to the point of need. Pharmacists in particular will benefit from information technology advancements by having greater access to more patient care data and improved communication to other health care professionals and patients. Pharmacists will have greater access to observing patient behavior so that they may better monitor prescription drug use, provide targeted and specific patient education, implement compliance and persistence interventions, and communicate directly

with patients regarding any drug or medical questions they may have. Pharmacists and other health professionals will also be able to input information they learn from or about the patient into the MCO or PBM patient database that can be accessed by the physician when reviewing drug use, prescribing a new drug, or refilling a prescription. Through video conferencing, web technology, and access to the clinical data warehouse, health professionals and caregivers throughout the world can communicate and yet provide personal interaction to individual patients to meet specific patient-care needs.

Internet Patient Marketing

Pharmaceutical manufacturers have used newsprint and television direct-to-consumer (DTC) advertisements quite effectively. Some advertisements are blatantly product based and inspire a patient to request a specific drug product from the physician. Other ads, considered more palatable by managed care, are more educational in nature and provide information about a specific medical condition to urge consumers to seek treatment if they have the condition. However, the rapid expansion of Internet access by a growing number of households has produced another medium for DTC advertisement.

More than 8,000 health-related Internet websites and pharmaceutical manufacturers hoping to influence patient behavior sponsor many of these technological advertisements.[26] The content of the pharmaceutical-related websites provides information on a treatment or medical conditions, and some provide comprehensive consumer-oriented drug information. Some websites are interactive and allow the patient to communicate with the corporate sponsor and request additional information. Many of the websites have established links to other related websites, and some MCO websites recommend health-related websites that are particularly informative and unbiased. It is also possible to provide coupons and discounts to patients through the Internet and even send samples for nonprescription products to patients on request.